● PRINTER RUSH ●
(PTO ASSISTANCE)

IFW

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[RUSH] **MESSAGE:**

On Page 2 of the specification submitted on 1-25-01 there is data missing on Line 20.

Please supply missing data

Thank You
TW

[XRUSH] **RESPONSE:** ~~OK See letter attached~~

OK

per Atty

INITIALS: MY

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packed bed i.e. the second stage. This sequence is repeated until the desired conversion is obtained. Thus the temperature profile of the reaction will be stepped within an acceptable range of temperature, and will therefore not be truly isothermal.

The heat exchanger panel of choice for the purposes of the invention is one formed from a plurality of plates superposed and diffusion bonded to form a stack of plates, wherein fluid passages are defined in said stack by virtue of a pre-treatment of said plates wherein each plate is selectively configured to provide channeled or blank surfaces according to the desired pattern of fluid passages by a treatment to remove surface material e.g. by chemical etching, hydraulic milling, or the like process to a desired depth. Optionally the chemical treatment may be augmented by a mechanical treatment using a suitable tool.

Such a pre-treatment of the plates is conducted in a manner analogous to manufacture of printed circuit boards (PCBs) and for this reason the heat exchanger design can be described as a printed circuit heat exchanger (PCHE). The application of the diffusion bonding technique for metal plates is well understood in the art of metal working and is applied for a variety of purposes e.g. in medical prosthesis manufacture.

This design of the PCHE has been proven by the designers of the proposed PCR system since 1985 when these compact heat exchangers were first introduced.

A PCR type of reactor was designed by the present applicants and is the subject of a separate patent application (~~Ref:32 46271 WO~~ GB 0001699.8). Such a reactor is formed to provide at least one reaction zone, bounded by a heat exchanger formed from a plurality of plates superposed and diffusion bonded to form a stack of plates, wherein fluid channels are defined in said stack by virtue of pre-treatment of said plates wherein each plate is selectively configured according to the desired pattern of channels by a chemical treatment to remove surface material e.g. by chemical etching, to a desired depth. The fluid channels defined in the stack provide the opportunity to arrange for various reactant fluids to be conveyed in channels arranged in heat transfer relationship to discrete channels containing at least one auxiliary fluid for controlling the temperature of the reactants.

In order to maintain adequate control over a reaction, it is preferred that the reactant temperature profile at the exit of the heat exchanger panels is flat, since the reactants pass directly into the following adiabatic bed, without an opportunity to mix on a gross scale. If the reactants are too hot or too cold in places, the selectivity or